WHAT IS CLAIMED IS:

1. A cell processing apparatus for executing processing for switching a short-packet in AAL Type 2 cell format, comprising:

means for splitting a short packet, which has a length greater than a length L bytes capable of being accommodated in one ATM cell, into short-packet portions so as to be accommodated respectively in first and second ATM cells; and

cell creation means for accommodating significant data containing one of the short-packet portions and short-packet length information in a payload area of the first ATM cell, accommodating remaining significant data including another short-packet portion, which could not be accommodated in the first ATM cell, in a payload area of the second ATM cell, and inputting the first and second ATM cells to an ATM switch.

2. The apparatus according to claim 1, further comprising restoration means for extracting short-packet portions accommodated in respective ones of first and second ATM cells upon referring to said short-packet length information that has been accommodated in the first ATM cell output from an ATM switch, restoring the original short packet having a length greater than L bytes, and sending the original short packet to a line in an AAL Type 2 cell format.

3. The apparatus according to claim 1, wherein said cell creation means accommodates the significant data in

the payload of the first ATM cell in such a manner that the amount of the significant data accommodated in the payload of the first ATM cell becomes a predetermined amount, and accommodates the remaining significant data in the payload of the second ATM cell.

4. The apparatus according to claim 2, further comprising means for generating sequence-number information for identifying first and second ATM cells;

said cell creation means adding on the sequence-number information in a specific area of each of the first and second ATM cells, and said restoration means detecting absence or presence of cell discard upon referring to the sequence-number information of a received ATM cell.

5. The apparatus according to claim 4, wherein said restoration means preserves significant data that has been accommodated in the payload of an ATM cell received from an ATM switch and, if cell discard is detected, discards the preserved significant data.

6. The apparatus according to claim 4, wherein the specific area is an area within the payload of an ATM cell and contains no significant data of a short packet.

7. The apparatus according to claim 4, wherein the specific area is an unused area within an ATM cell header.

8. The apparatus according to claim 4, wherein said cell creation means adds on a short-packet header in the payload area of each of the first and second ATM cells

and employs an unused area within the short-packet header of each cell as the specific area.

9. The apparatus according to claim 2, further comprising means for generating code information for identifying first and second ATM cells;

said cell creation means adding on the code information in a specific area of each of the first and second ATM cells, and said restoration means detecting absence or presence of cell discard upon referring to the code information of a received ATM cell.

10. The apparatus according to claim 9, wherein said restoration means preserves significant data that has been accommodated in the payload of an ATM cell received from an ATM switch and, if cell discard is detected, discards the preserved significant data.

11. The apparatus according to claim 9, wherein the specific area is an area within the payload of an ATM cell and contains no significant data of a short packet.

12. The apparatus according to claim 9, wherein the specific area is an unused area within an ATM cell header.

13. The apparatus according to claim 9, wherein said cell creation means adds on a short-packet header in the payload area of each of the first and second ATM cells and employs an unused area within the short-packet header of each cell as the specific area.

14. The apparatus according to claim 2, further comprising means for generating an error detection code

for detecting an error in significant data;

said cell creation means adding on the error detection code in a specific area of the second ATM cell, and said restoration means calculating an error detection code using significant data in the payload area of a received ATM cell, comparing this calculated error code with a received error correction code and detecting absence or presence of cell discard and bit error in data.

15. A cell processing apparatus for executing processing for switching a short-packet in AAL Type 2 cell format, comprising:

means for splitting a short packet, which has a length greater than a length L bytes capable of being accommodated in one ATM cell, into short-packet portions so as to be accommodated respectively in first and second ATM cells;

cell creation means for accommodating the short-packet portions in the first and second ATM cells, accommodating short-cell headers, onto which have been added length information identifying length of accommodated short-packet portion, in the first and second ATM cells, and inputting the first and second ATM cells to an ATM switch; and

restoration means for discriminating length of the short-packet portion accommodated in each ATM cell upon referring to the length information contained in the short-cell headers of first and second ATM cells output

from an ATM switch, extracting the short-packet portion from each ATM cell based upon the length information, restoring the original short packet having a length greater than L bytes, and sending the original short packet to a line in an AAL Type 2 cell format.

16. The apparatus according to claim 15, wherein said cell creation means accommodates L-byte short-packet portion in a first cell and remaining short-packet portion in a second cell, makes length information LI of the first ATM cell a specific value, e.g., 0, and makes length information LI of the second ATM cell a value indicating length of the short packet.

17. The apparatus according to claim 16, wherein when said restoration means detects successive cells for which

LI = said specific value

holds, or detects successive cells for which

LI ≥ 45

holds, said restoration means decides that cell discard has occurred.

18. A cell processing apparatus for executing processing for switching a short-packet in AAL Type 2 cell format, comprising:

means for splitting a short packet, which has a length greater than a length L bytes capable of being accommodated in one ATM cell, into short-packet portions so as to be accommodated respectively in first and second ATM cells;

cell creation means for accommodating the short-packet portions in payloads of the first and second ATM cells, accommodating short-cell headers, onto which have been added information identifying lengths of respective ones of the short-packet portions, in the payloads of the first and second ATM cells, adding on code information, which is for identifying the cell, to a predetermined position of each ATM cell, and inputting the first and second ATM cells to an ATM switch; and

restoration means for discriminating length of the short-packet portion accommodated in each ATM cell upon referring to the length information contained in first and second ATM cells output from an ATM switch, identifying the first and second ATM cells upon referring to the code information, extracting the short-packet portion from each ATM cell based upon the length information and code information, restoring the original short packet having a length greater than L bytes, and sending the original short packet to a line in an AAL Type 2 cell format.

19. The apparatus according to claim 18, wherein said restoration means detects absence or presence of cell discard upon referring to the code information of the ATM cells received from the ATM switch, and, when cell discard has been detected, discards short-packet information that is incapable of completing a short packet.

20. An ATM exchange for handling AAL Type 2 cells,

comprising:

a preprocessor for receiving a short packet in an AAL Type 2 cell format, the short packet having a length greater than a length of L bytes capable of being accommodated in one ATM cell, splitting the short packet and converting it to two standard ATM cells;

an ATM switch for switching the standard ATM cells, which enter from said preprocessor, to a prescribed outbound path upon referring to headers of the ATM cells; and

a restoration unit, which is provided on the outbound-path side of said ATM switch, for receiving the two standard ATM cells created based upon the split short packet, assembling the original short packet, the length of which is greater than L bytes, using these standard ATM cells, and outputting the short packet to a line in an AAL Type 2 cell format.

21. An ATM exchange method for switching a short-packet in AAL Type 2 cell format, comprising the steps of:

receiving a short packet in an AAL Type 2 cell format, the short packet having a length greater than a length of L bytes capable of being accommodated in one ATM cell;

creating two standard ATM cells by splitting the short packet, and then inputting the two standard ATM cells to an ATM switch;

switching the standard ATM cells in the ATM switch to a prescribed outbound path upon referring to headers

of the ATM cells;

receiving two standard ATM cells, which have been created by splitting the short packet, from the ATM switch; and

assembling the original short packet, the length of which is greater than L bytes, using these standard ATM cells, and outputting the short packet to a line in an AAL Type 2 cell format.

22. A cell discard method in an ATM exchange for splitting a short packet, which has a length greater than a length L bytes capable of being accommodated in one ATM cell, into short-packet portions, accommodating the short-packet portions in respective ones of two ATM cells (a first-half cell and a second-half cell), switching the ATM cells by an ATM switch on a per-ATM-cell basis, restoring the original short packet, which has a length greater than L bytes, using the first- and second-half cells after the cells are switched, outputting the original short packet to a line in an AAL Type 2 cell format, and discarding the first-half cell in a case where only the first-half cell arrives and not the second-half cell, said method comprising the steps of:

storing, in memory, data indicating whether a second-half cell, which corresponds to a first-half cell that has already arrived, has arrived or not;

investigating whether a second-half cell has arrived or not by reading out said data periodically by

means of polling; and

discarding the first-half cell if the second-half cell has not arrived even when said data has been investigated a predetermined number of times or more.

23. A cell discard method in an ATM exchange for splitting a short packet, which has a length greater than a length L bytes capable of being accommodated in one ATM cell, into short-packet portions, accommodating the short-packet portions in respective ones of two ATM cells (a first-half cell and a second-half cell), switching the ATM cells by an ATM switch on a per-ATM-cell basis, restoring the original short packet, which has a length greater than L bytes, using the first- and second-half cells after the cells are switched, outputting the original short packet to a line in an AAL Type 2 cell format, and discarding the first-half cell in a case where only the first-half cell arrives and not the second-half cell, said method comprising the steps of:

storing, in memory, arrival time of a first-half cell, data indicating whether a second-half cell, which corresponds to a first-half cell that has already arrived, has arrived or not, and chain data indicating order of arrival of first-half cells;

calculating difference between present time and arrival time of a first-half cell, for which the corresponding second-half cell has not arrived, wherein the first-half cell is the leading cell in the order of

arrival; and

if the difference exceeds a stipulated time, discarding the leading first-half cell and adopting a first-half cell that is next in the order of arrival as the leading first-half cell.

24. The method according to claim 23, further comprising the steps of:

storing the time at which a second-half cell arrives; and

comparing the arrival time of this second-half cell with the present time and discarding the first- and second-half cells which have arrived but which have not been read out of the memory and sent to a line upon elapse of a predetermined period of time.